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17. ABSTRACT (MAX. 250 WORDS)

The use of the language laboratory has given many thousands of individuals good listening and speaking practice and has become an effective learning tool. The basic piece of equipment of the language laboratory is the tape recorder-and-playback, designed to be used with audio-passive study, audio-active study, audio-active-comparative study, and individual study. Such components as microphones, headphones, and student tape recorders are added as usage study functions increase. Visual components may then be added to allow the student to see what he is talking about.

The two basic types of language laboratories are the regular class-assigned laboratory and the independent study facility. An instructor's console enables the teacher to direct programs, divide the class into groups, monitor student responses, communicate with any student to correct or to help him, record responses, and make or duplicate master tapes. This electronic system suggests that individuals using these resources need not be in the same room or even in the same building.

Facial expressions, gestures, and language environment are significant components of "language" which communicate feeling and thought and involve visual components. Master tapes for language learning have been coordinated on film.

College libraries of the future may follow the direction taken by language laboratories and become a number of electronically related learning centers, each serving a particular division conveniently, and each having access to materials stored at other centers.

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LANGUAGE LABORATORIES by Charles William Brubaker, partner, Perkins & Will, for the 1962 Summer Workshop Program at M.I.T., Cambridge, Massachusetts, The Council for the Advancement of Small Colleges

The language laboratory is of interest to us because:

1. It has proved its usefulness in effective learning of languages.
2. It is becoming more useful for learning in other areas.
3. In its broader aspect as a "learning laboratory", it is providing us with valuable experience with IS & R (information storage and recovery) systems which are becoming increasingly important in an increasingly complex world.
4. It has made material available to the individual instantly when and where desired, thus encouraging independent study and individual scheduling.
5. It promises to transform itself into a broader and more useful medium utilizing not only audio, but also visual images (and, therefore, may be responsible for transforming educational television from a mass medium to an individual use medium).
6. It has enriched the resources of the library, helping to make possible the concentration of a broad range of materials at learning centers.

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7. It is one of the most dramatic new developments that is transforming the library from a vault-like depository for books into a vital center serving all facets of the students' learning life, even enabling the individual to use library resources from distant places.

Language skill, so necessary for reading, writing, and oral communication, is also essential for understanding foreign cultures. Since the language learning process involves 1) understanding by ear, 2) speaking, 3) reading, and 4) writing, in that order, it is apparent that effective listening and speaking practice is worth seeking. The language laboratory, unknown fifteen years ago, has already given hundreds of thousands of individuals good listening and speaking practice, so it has rather suddenly become an effective tool for learning. Today, the average college has a language laboratory; it is used every day but it is already obsolete; however, the experience gained using this equipment is valuable as it will affect the design of tomorrows college -- both the college program and environment.

Before anticipating future developments, a review of existing equipment seems appropriate. Language laboratory design is determined by how the student studies, and we can easily identify four kinds of study:

1. Listening Only (Audio-Passive) -- The student, wearing headphones, hears the master tape recording.
2. Listening and Responding (Audio-Active) -- The student listens to the master recording, responds into his microphone and hears his own voice instantaneously through his headphones.

3. Listening, Responding, Recording and Comparing (Audio-Active-Comparative) -- The student listens to the master recording, responds, and records on tape both the master voice and his own voice; he then plays back the tape to compare the master and his own voice.

4. Individual Study -- Same as above, except the student can work independently (at his own level and rate) using appropriate master tapes on his own tape recorder.

Components are added as usage study functions increase. The basic piece of equipment is a tape recorder-and-playback. The student listens with headphones. A microphone is added to permit him to hear his own voice when he responds to the sounds he hears from the master tape. Then, to enable the student to record his own voice (along with the intermittent master tape sounds) a student tape recorder is added, and he can playback his tape to hear and study and compare his own voice. Channel selectors and additional program sources are added to give the individual access to a variety of programs. Finally, the visual components may be added, so the student can see what he is talking about the culture of the language.

In the beginning we should recognize two basic types of language laboratories. One is the regular class-assigned group-use laboratory which accommodates groups of students on a regular class schedule. The other basic type is an independent study facility which may well be a learning center facility which is used by each student on an individual basis (as a supplement to classroom instruction) whenever his own schedule permits. The regular group-use laboratory may be located in the language area with classrooms clustered around it

since it is used by classes, but the independent study facility is logically a learning center or library-related facility because the individual study spaces are ideal places to study not only languages, but also literature, music, history and government.

Historically (considering the tape recorder, this means about ten years!), the typical language laboratory has consisted of about thirty identical booths lined-up in rows with an instructor's console at the front of the room. A stepped floor improves viewing (as in Purdue's new labs). Occasionally, curved rows relieve the rigidity of regimented booths and improve views too.

Each booth contains, as minimum equipment, a headphone. If the headphone has a microphone attached, the student can listen and respond. If a recorder is added in the booth, he can record both the master and his own voice --then playback the recording, listen and compare. The most useful (and most expensive) booth includes a tape recorder capable of playing master tapes; this permits independent study; the individual can use the appropriate master tape and work at his own speed; such a booth can be used for both large-group classes and for independent study.

In the typical laboratory, the instructor's console is a desk-like unit upon which are mounted a number of tape recorders and a master control panel. The instructor can direct different programs to selected students, divide the class into groups, monitor individual student's responses, communicate with any student to correct or help him, record any responses, and make or duplicate master tapes. Certainly this electronic system suggest that not all individuals using these resources need be in the same room or even in the same building -- this is a significant fact for future development.

Recent developments are changing the young language laboratory. Dr. Elton Hocking, at Purdue, reminds us that "language is multi-sensory." Facial expressions, gestures, and language environment are significant components of "language" which communicates not just words in grammatical relationships, but feelings and thoughts. Clearly formulated -- articulate -- language often involves visual components. Therefore, master tapes for language learning have been coordinated with films. As video-tape continues to be developed, we can expect it to be used in the learning laboratory, with the television tube. We will record on tape both the sounds and sights of language, literature, music, science, and history. The individual, via the magnetic speaker and television tube will have access to libraries of video-tape stored as cartridges at the learning center.

To eliminate the manual threading and rewinding of tape, the endless loop tape cartridge has been developed and is used successfully in many laboratories. A hand-size plastic cartridge feeds tape from the inside, over the recording-head and back onto the outside, providing an endless loop of tape. Such a cartridge is simply plugged into the playing equipment.

Cartridges and playing equipment can be located anywhere. The tapes can be played automatically by remote control. At Florida Presbyterian College, the recorders, master tapes, amplifiers, power supply, etc. are all located in remote cabinets. The student uses a standard telephone dial to select the appropriate lesson. Therefore, the student may study in a booth in the laboratory, in a carrel in the library, or in his own room at home. Telephone lines connect his dial and his headphones to the equipment and master tapes located at one

central location. The environment for learning in the small college has suddenly been extended, electronically, beyond the forty acres.

The new undergraduate library at the University of Michigan provides an excellent example of an individual study facility. In one large room, many individual study spaces are equipped with a dial and headphones, and with a daily program listing many tapes being played continuously that day. If a humanities professor requests it, the library will play T. S. Eliot reading his "Four Quartets" all day Thursday. Any student can dial number fourteen and listen. If he dials eleven, he will hear the first year French lesson for the day again. But if he missed last week's lessons, he can check out that tape at the desk and play it independently. He'll hear Beethoven on the fifth channel, Kennedy on the fourth.

The laboratory is freeing the individual from the rigid pace of class and the rigid confines of classroom; here he can repeat, move ahead at his own rate, change, select, exclude and combine materials. By combining this audio experience with the concurrent development of educational television, we can see exciting possibilities. Perhaps the student will consult a directory, dial, and receive (on an individual basis) sound and visual images (via television tube and speaker) from a central library of video-tape cartridges. Educational television, developed for mass use, may find new success in individual use.

Finally, considering recent developments, the learning laboratory has lost its connecting wires. In the "E.F.I." system, an induction field is set up within the room and any student can listen to the master tapes by wearing a wireless headphone with a small receiver attached. "E.F.I." has also developed a notebook-size unit (which

holds hours of recorded material) which the student can carry along with him and use anywhere. We can safely conclude that the learning laboratory realm is active.

The learning laboratory significantly affects every function of the college library:

Collecting -- Not only books, pamphlets, periodicals and micro-film, but now audio-tape and video-tape are collected at the learning center.

Cataloging -- The new materials are listed, using color-coded cards, in the card catalog. With this "inter-file" system, the user is referred to books, periodicals, film, audio-tape, video-tape, etc.

Storing and Distributing -- Tape can be stored 1) on shelves for manual distribution to instructors for class use, and to students for individual study, and 2) as cartridges for automatic equipment use, accessible by dial system.

Using -- Tapes are used for groups in laboratories and by individuals in study carrels located either within the learning center or at any other location on or off the campus. (At Chicago Teachers College, hundreds of individual study carrels are distributed throughout the campus and in the library.) Tapes can be used at remote locations by carrying the tape to that location, or by dialing to an equipment center.

Information Storage and Retrieval systems are increasingly important to our complex society, and the traditional book library is now subjected to tremendous pressures to embrace these new mechanical-electrical IS & R

systems. As educators and architects concerned with the environment for learning in the small college, we should value any experience with IS & R systems, knowing that such experience will enable us to better evaluate future systems and put the hardware to work in the service of learning, without being overwhelmed by it or dominated by it.

Books will continue to enjoy the paramount position in the library, but for storage and use of certain kinds of information books have limitations. Only one person can use a book and it must be "taken out" to be used; it must be manually checked out and recovered and cared-for; it is not adaptable to modern rapid scanning methods and it cannot be instantly reproduced. Tape, symbolizing the electronic revolution, expands our opportunities for information storage and retrieval.

The new media electronics (experienced vividly in the language laboratory) tend to physically liberate the library from one location. The future college library may be a number of electronically-related "learning centers", each serving a particular division conveniently, each kept to an agreeable human scale, each having access to the materials stored at other centers. From the history learning center, one may be able to dial and hear language tapes stored at the language learning center; the tapes need not move; only electronic impulses will be transmitted. Too, the small college, retaining its advantages of size, can cooperate and share resources with other colleges in federations; the learning center may also be the center for such cooperation.

The old rules for college design have lost their power, and no one has written the new rules, but the new concept of the library -- the learning center -- is emerging to give direction to new designs for colleges providing a finer environment for learning.